

Smoke Control Special Inspections Supplemental Submittal Checklist

The **Smoke Control** record is required by **Office of the Fire Marshal** when building design includes smoke control systems and is used as a mechanism to submit the required documents for approval. To create a Smoke Control record please follow the instructions provided at: [smoke control plus guidelines.pdf \(fairfaxcounty.gov\)](#)

The Rational Analysis Report should be submitted before fire marshal review for construction plans can be approved. A set of fabrication and erection documents including the rational analysis and special inspection procedure shall be submitted along with the construction documents during the application for building permit.

Pre-testing

- Qualifications - Special Inspections and tests for smoke control systems shall be conducted by qualified individuals, agencies, or firms with expertise in fire protection engineering, mechanical engineering and certification as air balancers. The special inspections engineer of record for smoke control systems shall be approved by the Office of Fire Marshal, Engineering Plans Review Branch, on behalf of the Building Official.

Provide resumes of individuals conducting the test.

- Provide examples of projects where third-party, specific to the persons named in the resume, conducted special inspection for smoke control in project of similar size, story, space, etc.
- Provide copies of certificates that reflect air balancer certification from a recognized agency such as Associated Air Balance Council (AABC).

Third Party Inspector's Qualification approval should be obtained at the earliest, at least 30 days prior to performing special inspections. Failure to obtain approval will delay conducting inspections and obtaining Certificate of Occupancy. Submit required documentation to the Fire Marshal's office as outlined by the smoke control record review process.

- The AHJ may choose to observe/audit the installed components of the smoke control system(s) and witness the smoke control system performance tests. The A/E and Contractor shall certify that the smoke control system is complete prior to acceptance test by the AHJ. Once the smoke control system installation is completed and pretested by the contractor, notification shall be provided to the special inspector and Office of the Fire Marshal, 5 days in advance for final testing. Notification to **Office of the Fire Marshal** shall be emailed to fire.engplansreview@fairfaxcounty.gov.

Post testing

- The final report of testing (see VCC 909.18.8.3 Reports) compiled by the third-party special inspector must be dated, signed, and sealed by the Registered Design Professional.
- Data that shows the air pressure differentials at doors for each stair, at every level and at all atrium doors serving means of egress while the system was in operation.
- Data that shows pressure differentials across smoke barriers for each smoke control condition.

- Briefly describe how the assumptions in the rational analysis fit the testing scheme. Example, what were the environmental conditions (temperature, etc.)? See VCC-18, 909.20.5.
- Provide indication that all sequence of operations was verified (manual and automatic), all panel functions (i.e., verification of input/output signals both fire alarm and firefighter smoke control panel, firefighter panel priority over others), control verification and monitoring of equipment.
- Indicate how long it took for power transfer to occur and whether the system performed during the entire operation as required per rational analysis including all equipment.
- Indicate that all rated walls, barriers, partitions, and ceilings were visually verified, and all penetrations sealed as required by code to maintain continuity. Verify exact location of fire/smoke barriers matches what is shown on approved plans. Any changes not reflected on the approved permit set require as-built submittal with final report submission.
- Indicate which detectors were operated for smoke control activation and verification of their annunciation at the panel. Testing shall include verification of airflow in both min and max conditions.
- Provide verification that dampers operated at all the required locations per the approved plans and were installed in the smoke zone boundary.
- Indicate the air flow rates at the exhaust and make up air location(s) and how they compare with the approved rational analysis.
- Provide drawings with the location and time where the pressure measurements were read and whether those pressure were maintained during testing.
- Provide copy of fan curve from manufacture. How does it compare to fan operation during testing? Include voltage, amperage, rpm, and belt tension.
- Provide documentation that shows the gauges and other measurement devices used for air flow measurements or opening force were calibrated within 12 months of test.
- In report, provide identification of all devices by manufacturer, nameplate data, design value, measured values.
- Indicate any deviations from the rational analysis and any limitations experienced during testing.
- Submit required documentation to the Fire Marshal's office as outlined by the smoke control record review process.

For any questions, call 703-246-4806 or email fire.engplansreview@fairfaxcounty.gov

Referenced Documents

- SPECIAL INSPECTIONS PROGRAM - 2018 Edition (2018-SIP)- Chapter 16 [SPECIAL INSPECTIONS PROGRAM 2018 Edition \(2018-SIP\) \(fairfaxcounty.gov\)](#)
- Guidelines for Smoke Control Manual can be found at [Engineering Plans Review | Fire and Rescue \(fairfaxcounty.gov\)](#)
- Virginia Construction Code, 2018 edition.